



# Cisco ACE: Comprehensive Application Delivery Portfolio



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# Data Centers under Increasing Pressure

## Challenges



**Power & Cooling**



**Consolidation**



**Provisioning**



**Threats and Perf.**



**Bus. Continuance**

- **Power and cooling crisis in data centers**
- **Consolidation of data centers**
- **Longer application provisioning cycles**
- **Application downtime and slower application response times**
- **SOA and Web 2.0 - security vulnerabilities and performance bottlenecks**
- **Need to maintain business continuity**

# Data Center & Application Challenges

“Power and cooling is a pandemic in the world of the data center. By next year, about half the world's data centers will be functionally obsolete due to insufficient power and cooling capacity.” **Gartner Inc, June 2007**

“Organizations continue to become geographically dispersed due to acquisitions, entry into new markets, and the use of lower cost locations. This trend is on a collision course with the desire of IT managers to consolidate many data centers..” **Infonetics Research**

“Replacing or upgrading applications is an important issue for many firms, ranking as the fifth-highest priority among IT decision makers for 2006 ..” **Forrester Research, Dec 2007**

“Applications are the biggest source of network downtime, accounting for roughly 25% or \$213,000 annually, split 65/35 between application outages and degradations.”, **Infonetics Research, March 2006**

“Total security downtime lost productivity and revenue cost for large organizations passing \$30M (2.2% of revenue)...” **Infonetics Research, 2007**

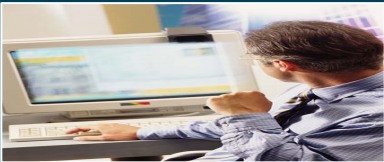
“50% of enterprises and government agencies are using XML, Web services or SOA.” **Gartner**  
“XML accounted for 15% of internet traffic in 2005. By 2008, it is expected to account for 50%.”  
**451 Group**



# Cisco ACE Solution and Benefits



**Application Availability**



**Application Acceleration**



**Application Security**



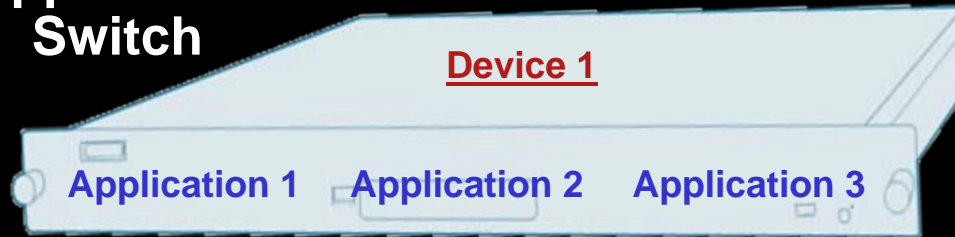
**Optimal TCO with  
Virtualized Architecture**

- Minimize impact of application, device or site failure
- Maximize availability through highly scalable (up to 64Gbps) load balancing and application switching
- Improve end user productivity with up to 300% faster applications
- Improve server performance by offloading SSL, TCP, XML processing
- Comprehensive security for network, applications, XML and Web Services
- Provides last line of defense for servers
- Protects against day zero attacks
- Provides up to 90% reduction in power & cooling expenses
- Reduces CAPEX
  - Up to 65% fewer by cutting down sprawl & complexity
  - Up to 80% improved server CPU performance
- Provides up to 70% faster application deployments and build-outs
- Increases IT productivity
  - Save 2 to 4 weeks, deploy virtual device, not physical device
  - Save 6 to 8 trouble tickets and 2 to 4 days with RBA

# Supporting Multiple Applications : The Old Way

## No isolation

One Physical  
Application  
Switch



- Applications compete for resources
- Changes to one app can impact others
- Overly complex device config files

**OR**

## Inefficient Isolation

Many  
Physical  
Application  
Switches



- Device sprawl
- Underutilized device resources
- Complex to upgrade

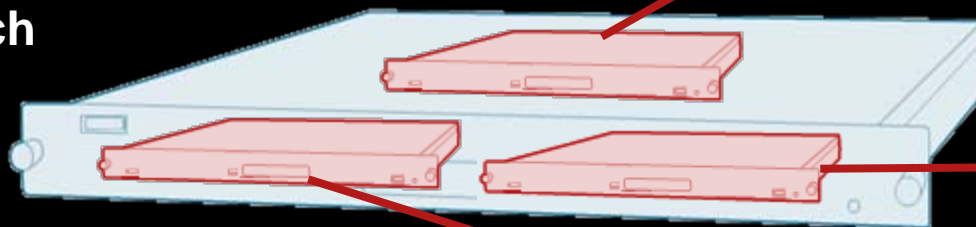
# Supporting Multiple Applications : The Cisco ACE Way

## ACE Virtualized Architecture: Virtual Devices and RBA

- Isolate and secure applications, customers, and/or departments based on virtual devices
- Customized, guaranteed resources per application

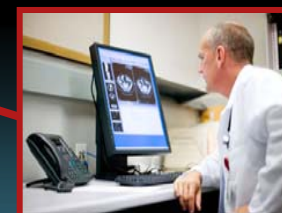
One Physical  
Application  
Switch

Multiple Virtual  
Devices



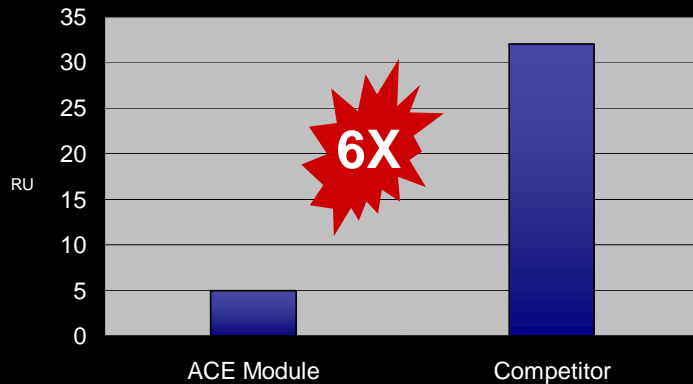
Single ACE

Ideal Isolation

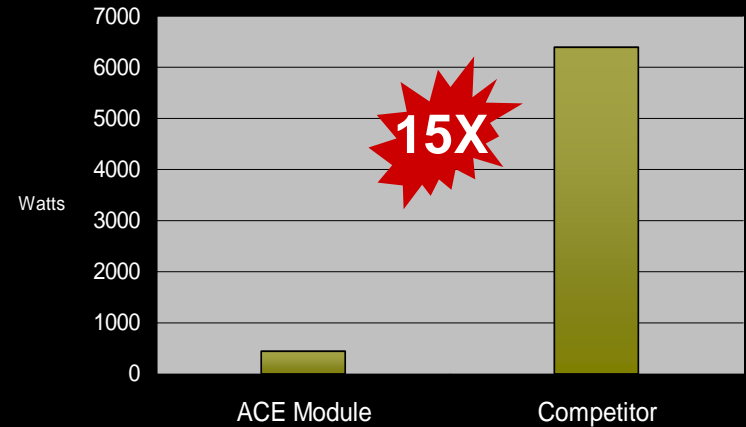


# Virtualization Benefit : “Green ACE” Much Lower Power & Cooling

## 16 Isolated Applications at 2Gbps Throughput Each

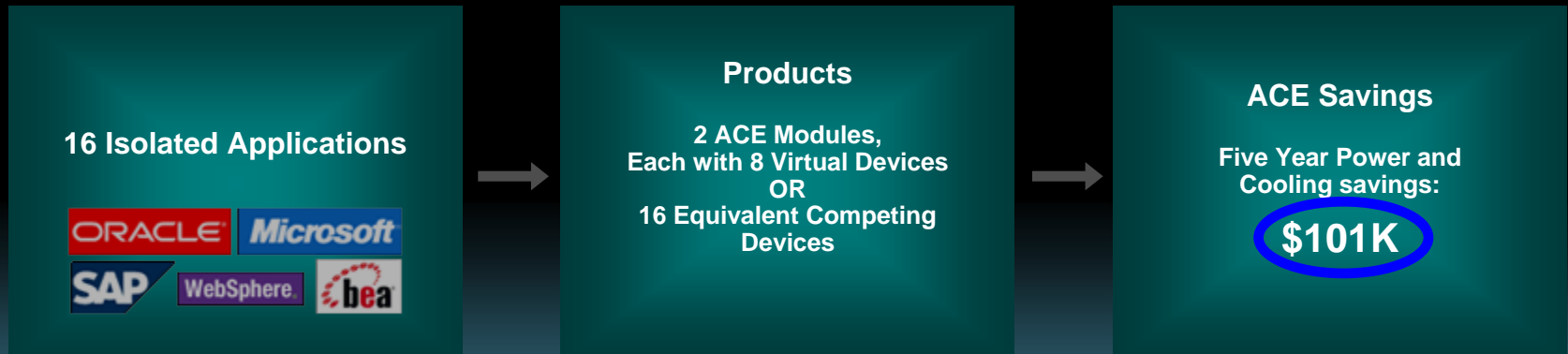


Physical Rack Space Requirements



Power and Cooling Consumption

## Power and Cooling Savings





# Virtualization Benefit : Faster App Rollouts From Weeks To Minutes

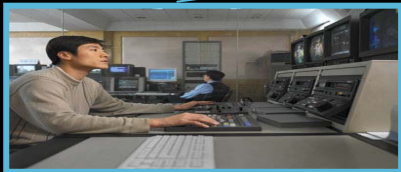
- **Deploy a virtual device, not a physical device**

- Eliminates purchase cycle
- No device install or setup
- Partitions deployed in minutes
- Typical savings: two to four weeks



- **Role-Based Administration**

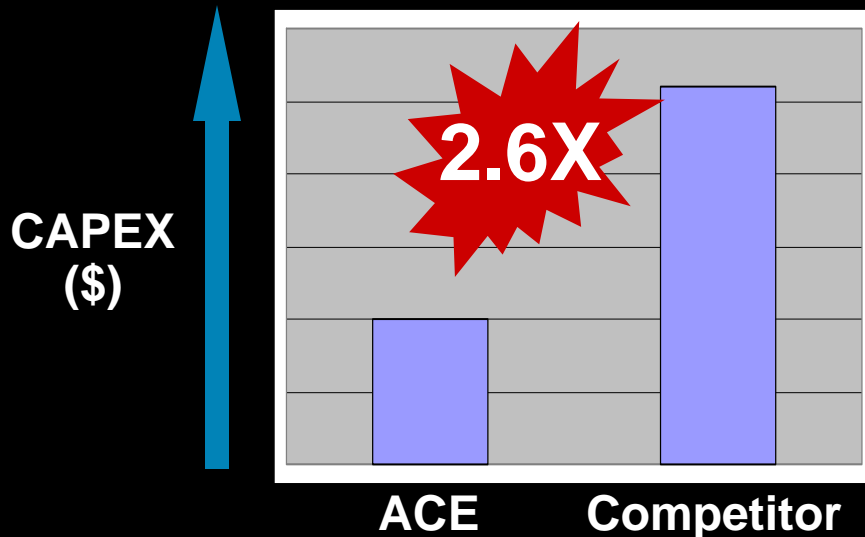
- Delegate customizable administrative rights to each IT department
- Eliminates coordination choke points and trouble tickets
- Typical savings: 6 to 8 trouble tickets and two to four days



# Virtualization Benefit : Cost Efficiency

Deploying Virtual Devices and Not Physical Devices Saves CAPEX

Example: 8 Isolated Applications at 2GB Throughput Each



- ACE: 1 x 16Gbps with 8 virtual devices
- Competitor: 8 x 2 Gbps physical devices

ACE Comes Well-Equipped As Shipped

	<u>ACE</u>	<u>Competitor</u>
SSL 1000 TPS	✓	\$
Sufficient Memory	✓	\$
Routing Protocols	✓	\$
Rate Shaping	✓	\$

# ACE Virtualized Architecture : What Customers Say



**“First National virtualizes everything including servers, routing porting tables and the network. Now that we have the ability to virtualize or create secure virtual devices within the same ACE module and still obtain incredible throughput, there was nothing else to consider; the Cisco ACE made perfect sense.”**  
Patrick Stephens, Network Engineer with First National of Nebraska

**End-to-End  
Virtualization  
capability**



**“These capabilities ease our IT management challenges, as we can better manage traffic across multiple servers and deploy applications within minutes, in normal business hours, without disruption to our user communities.”** John Turner, Director of Network Systems for Brandeis University

**Enables apps  
deployment at any  
time of day**



**“The Cisco ACE’s virtualization capability gives us the ability to provision faster roll-outs and deliver a broad range of multiple applications and updates, giving us computing capabilities that we need currently and in the future.”** Jim Healis, Network Engineer, Weber State University

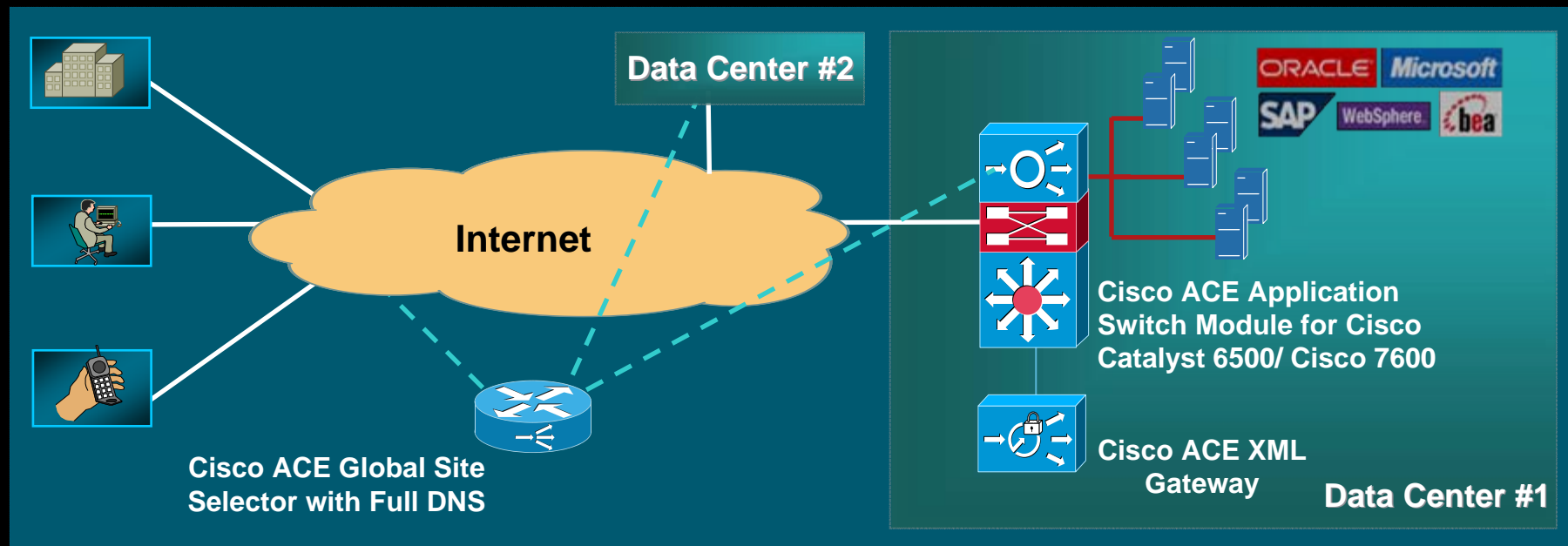
**Virtualization  
enables faster  
apps roll-outs**



**“Since Cisco ACE virtual devices are completely secure and isolated from each other, we have separated our production, test, and training environments using ACE virtual devices.”**  
John McManus, Mgr of Servers & Networks Group, Harper College

**Isolate apps &  
departments based  
on virtual devices**

# Cisco ACE Portfolio: Comprehensive Application Delivery for the Data Center



ACE – Application Switch Module

ACE GSS – Global Site Selector

Application Networking Manager (ANM) –  
Management Software

ACE XML Gateway – XML Switching & Security

# Cisco ACE Module :

## Next Generation of Application Switch



- Best-in-class Load Balancing and Content Switching
- Application Availability
- Application Acceleration
- Application Security
- Virtualized Architecture
- Rock Solid Quality - Fully tested & Safe Harbor Certified
- Support for Catalyst 6500 Switch and Cisco 7600 Router

**Industry's Highest Performing  
Application Switching Platform: 4-64 Gbps**



# ACE XML Gateway :

## Leading Transition to Web 2.0 & SOA



- Inspect, secure & accelerate XML traffic
  - Industry leading 30K TPS
- Deep XML message visibility
- Powerful XML Firewall
- Offload XML message processing & server load
- Translate protocols and integrate messages

**Enables faster and more secure deployment  
of SOA and Web 2.0**

# ACE Global Site Selector :

## Ensuring DC-DC Continuity



- Provides failover across distributed data centers to maintain availability
- Intelligently select best data center to ensure application SLAs
- Fully integrated DNS Server
- Reacts to changes in Local and Global Networks
- Scale as you grow to multiple Data Centers, servers, and switches

**Global Application Switching Solution**

# Application Networking Manager : Complete, Single-View Mgmt for ACE

The screenshot displays the ACE 4710 Device Manager 1.0 (0) (20061116:1646) interface. The main content area is titled "Config > Virtual Contexts > Load Balancing > Virtual Servers" and shows the "Creating Virtual Server" configuration page in "Advanced View".

On the left, a tree view under "Slot 2" shows a "Virtual Context: Admin" with a list of virtual servers (perf\_vc\_1 through perf\_vc\_15). A callout box labeled "Grouping" points to this tree view.

The main configuration area is divided into sections:

- Properties:** Fields for VIP Name, VIP IP, Netmask (255.255.255.255), Protocol (tcp selected), Application Protocol (http), Port (80), All VLANs, and VLANs.
- HTTP Parameter Map:** A dropdown menu.
- Connection Parameter Map:** A dropdown menu.
- ICMP Reply:** Radio buttons for none, active, and redirects.
- VIP Advertise:** Radio buttons for none and in-service (selected).
- Status:** Radio buttons for in-service (selected) and out-of-service.
- Protocol Inspection:** Includes "Enable Inspect" (checked), "Logging Enabled" (unchecked), and a table for "Actions" with columns for "Matches" and "Action".
- L7 Load-Balancing:** A table with columns for "Rule Match", "Action", "SSL Initiation", and "Insert HTTP Headers (name=val,...)".
- Default L7 Load-Balancing Action:** Includes "Action" (radio buttons for drop, forward, loadbalance), "SSL Initiation", and "Insert HTTP Headers (name=val,...)".

At the top right, a callout box labeled "Configure, Monitor, Report, Admin, Screens" points to the navigation menu (Config, Monitor, Reports, Admin).

At the bottom right, a callout box labeled "Intuitive Sequencing of Actions" points to the "Add", "Edit", "Delete", "Up", and "Down" buttons in the "Actions" table.

At the bottom left, a callout box labeled "Virtual Server (a.k.a. 'VIP') View" points to the "Virtual Context: Admin" section in the left-hand tree view.

The status bar at the bottom shows "Ready", a green checkmark with "36", and the date/time "Friday, November 17, 2006 6:26:47 PM".



# What Customers Have to Say...

## Application Availability



**“The Cisco ACE module’s ability to maximize the availability, scalable performance and security of the college’s data center applications played a large part in their decision to upgrade to ACE.”**  
John McManus, Manager of Servers and Networks Group, Harper College

## Application Acceleration



**“Cisco ACE is also helping First National offload SSL processing that had previously been a function of another vendor product. The capability of performing multiple tasks on the Cisco ACE makes it so much more appealing to us than having websites run through a traditional Web load balancer.”**  
Todd Kleinsasser, Network Engineer at First National Bank

## Application Security



**“We are going to utilize security features of ACE to eventually replace our firewall. The Cisco ACE will also be used to front-end the server between load balancers and the server security.”**  
Jim Healys, Network Engineer, Weber State University

## Virtualized Architecture



**“First National virtualizes everything including servers, routing porting tables and the network. Now that we have the ability to virtualize or create secure virtual devices within the same ACE module and still obtain incredible throughput, there was nothing else to consider; the Cisco ACE made perfect sense.”**  
Patrick Stephens, Network Engineer with First National of Nebraska

# Cisco ACE :

## Available, Accelerated and Secure Applications

### An ACE For Every Need

- Complete range of products to address wide array of application and data center challenges
- Industry-leading scalability, performance and security

### Fast, Secure, & Always-on Apps

- Up to 300% faster applications
- Best-in-class comprehensive app security including XML Firewall
- Minimize impact of application, device or site failure

### Optimal TCO

- Reduces CAPEX and increases IT productivity
- 90% lower power, cooling and space requirements
- Up to 70% faster application deployments

### Advanced Services and Support

- Award-winning global 24/7 support
- Professional lifecycle services, including planning, design, implementation, operation, & optimization services

# Thank You



# CISCO

More Information

[www.cisco.com/go/ace](http://www.cisco.com/go/ace)